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OBSERVATIONS

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ON NEW RADIOCARBON DATES
FROM THE CALIFORNIA CHANNEL ISLANDS

by
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INTRODUCTION:

An unavoidable delay occurs between securing a radiocarbon measurement and its final formal publication by the laboratory in "Radiocarbon". These observations are intended to make such dates available to interested students before formal publication, and to gather all unpublished radiocarbon dates on the California Channel Islands in one paper.

There are eight Channel Islands from which radiocarbon dates have been secured. Previously published is one date on San Miguel Island (Hubbs, Bien and Suess, 1960) and fifteen dates from Santa Rosa Island (Orr 1956 and 1960). This paper contains unpublished dates secured from Santa Rosa and Santa Cruz Islands by the Santa Barbara Museum of Natural History and the Western Speleological Institute; from San Miguel, and Santa Cruz Islands by Scripps Institution of Oceanography; and from San Nicolas, San Clemente and Santa Catalina Islands by the University of California at Los Angeles.

ACKNOWLEDGEMENTS:

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The cooperation of Dr. Hubbs of Scripps, and Dr. C.W. Meighan, Department of Anthropology at UCLA is gratefully acknowledged for their data and permission to include dates from San Miguel, Santa Cruz, San Nicolas, San Clemente and Santa Catalina Islands.

ABBREVIATIONS AND CODES:

Radiocarbon laboratories are designated by capital letter or letters, followed by a dash and a specimen number:

- L- Lamont Geological Observatory, Columbia University
- M- Michigan-Memorial Phoenix Project Radiocarbon Laboratory, Mich.
- LJ- Scripps Institution of Oceanography, La Jolla
- CT- California Institute of Technology, Pasadena
- UCLA- University of California at Los Angeles

Archeological localities or sites on Santa Rosa Island are designated by number, such as 131.2 or 131.173. On the other islands by the University of California, site numbers such as SCLI-118. Paleontological localities are designated by the prefix Q (Quarry), followed by a number, as: Q-14.

MODERN SAMPLES MEASURED FOR CONTROL:

The following samples were measured to determine the C14 age of modern species.

0 \pm 150 years BP., M-1148, Living mussel shells (*Mytilus californianus*) from Tecolote reef, northwest coast of Santa Rosa Island.
Collected by Phil C. Orr and Wilbur A. Davis.

-2.0% with respect to wood of same age. UCLA-149, living mussel shell (*Mytilus californianus*) collected from the mainland coast of Santa Cruz County, California, about 1878 AD.
Collected by Lorenzo G. Yates. Submitted by Phil C. Orr.

275 \pm 150 years BP. M-1134, Living red abalone (*Haliotis rufescens*) from San Nicolas Island.
Collected by Pierce Bros. Fisheries. Submitted by Phil C. Orr.

RADIOCARBON DATES FROM SANTA ROSA ISLAND:

The following measurements come from samples on the north coast of the island, with the exception of L-611-U, which is from the interior. The Canada Verde series all come from a radius of less than 200 yards. The center of which lies about 5000 yards east of the center of the northwest coast series, all of which are found within a radius of less than 1500 yards.

330 \pm 50 years BP. UCLA-134, Charcoal from fire place exposed in Skull Gulch, 20' south of border of Cemetery A (131.2A) at a depth of 22". The hearth, covered with shell material, lies under a waterlaid sterile layer, deposited since this time, and subsequently eroded by arroyo cutting. The date appears to have little to do with the adjoining Cemetery A, (see subsequent dates) but is important toward placing a maximum limit on climatic conditions which deposited up to one foot of light yellow sandy clay over many parts of the island, which were later deeply cut by arroyos.
Collected by Phil C. Orr and Bob White.

< 400 years BP. L-661-U. Wood from near the heart of a living Island Oak (*Quercus tomentella*) on Oak Ridge, at a minimum depth from the nearest living bark of 32". A preliminary examination made of a section of the Island Oak, and the Coast Live Oak (*Quercus agrifolia*) by Harold Gladwin indicated approximately ten times the number of rings per inch on the Island Oak. It is unknown whether these rings represent annual rings or not.

Photographs taken sixty years earlier of some of these trees indicate relatively little growth. Erosion of compact bedrock up to 5' from the roots of the trees suggests considerable longevity. The date suggests either more rapid erosion of shale, or a greater life span for oaks than formerly suspected. Neither is confirmed.

Collected by Wallace S. Broecker, William Farrand and Phil C. Orr.

440 \pm 80 years BP. UCLA-104. Wood from post hole in Canalino House No. 1, Skull Gulch, (131.2) House 1, appears to have been one of the latest occupied in the village, as the occupational debris had not completely encircled it. The house is isolated on the extreme edge of the village. Fragments of the carapace of a giant sea turtle were found, only occasionally do they range this far north today. A few feet north, sea grass from the bottom of the midden, was dated at 1860 \pm 340 years BP (CT-38). No contact material has yet been found although the date suggests occupation about the time of Cabrillo.

Collected by Phil C. Orr.

Reference: Orr 1950.

600 \pm 70 years BP. UCLA-102. Seeds of the Redmaid (Calandrinia ciliata) found with Burial No. 13, Cemetery B at Skull Gulch (131.2B). Skeleton was that of an adult female Canalino, flexed, face-down, skull disarticulated. Several quarts of the seeds were found between the bones, under circumstances suggesting they had been deposited after the flesh had decayed.

Collected by Phil C. Orr.

Reference: Orr 1962c.

900 \pm 80 years BP. UCLA-178. Olivella biplicata shell disc beads, Gifford type X3bII from earth above burials level 2 of Skull Gulch Cemetery A (131.2A). This date should have been of the same magnitude as UCLA-135 of 1820 years BP., which was made on Mytilus californianus. The reason for the apparent disagreement is unknown.

Collected by Phil C. Orr

1230 \pm 60 years BP. UCLA-103. Wood from post hole in Canalino House No. 3, Skull Gulch (131.2). Skull Gulch village has 73 house pits or circles composed of heaps of midden material. Each pit is ca. 40' in diameter and up to 8' deep. Excavation of the house shows a hard packed floor ca. 18' in diameter with post holes in which rotted wood remains.

Collected by Phil C. Orr.

Reference: Orr 1950.

1820 \pm 90 years BP. UCLA-135. Mussel shell (Mytilus californianus) from midden material mixed with burials at Skull Gulch Cemetery A (131.2A). Material collected from about 20' from UCLA-178, and in what appears to be the same horizon of this shallow cemetery. It seems unlikely that this small cemetery was in use more than 900 years, so one of these dates must be in error.

Collected by Phil C. Orr and Bob White.

2090 \pm 150 years BP. M-1147. Mussel shell (Mytilus californianus) from 18" level of top midden at Arlington Springs (131.173). This site, exposed in the side of a canyon, has several superimposed layers of midden, one of which is dated at 7350 \pm 350 (M-1133). Human bones found in strata 37' deep were dated at 10,000 \pm 200 years BP.

Collected by Phil C. Orr and Wilbur A. Davis.

Reference: Orr 1962a, 1962b.

2600 \pm 200 years BP. L-661-P. Land snail (Helminthoglypta ayresiana) from the upper section of a 30' sand dune at Tecolote Point (131.3). These dunes started to form prior to 7070 years BP. (L-290-D) and appear to have continued with slight interruptions during periods of occupation, until slightly later than 2600 years ago.

Collected by Phil C. Orr, Wallace S. Broecker and William Farrand.

3020 \pm 100 years BP. UCLA-179. Coffee bean shell (Cypraea spadicea) necklace from Black Bottom Burial No. 94, Cemetery A of Canada Verde Dunes (131.41A). Collected by Phil C. Orr.

3240 \pm 120 years BP. UCLA-139. Red Abalone shells (Haliotis rufescens) from midden surface of Cemetery A, Canada Verde Dunes (131.41A), immediately overlying burials of the Black Bottom, represented by UCLA-179 at 3020 \pm 100 years BP. Collected by Phil C. Orr and Bob White.

3250 \pm 140 years BP., UCLA-137. Charcoal from hearth ca. 10' west of Cemetery A boundary, Canada Verde Dunes (131.41A), and 12" below present surface. Collected by Phil C. Orr and Bob White.

3420 \pm 100 years BP., UCLA-138. Mussel shell (Mytilus californianus) from surface over Cemetery A, Canada Verde Dunes (131.41A). A date of 3580 was first given this specimen but was later corrected on a basis of computation of UCLA-149 modern Mytilus at -2.0% of wood of the same age (G. Fergusson personal communication). Collected by Phil C. Orr and Bob White.

4000 \pm 120 years BP., UCLA-142. Mussel shell (Mytilus californianus) from midden at about 3' overlying Cemetery A of Tecolote Point site (131.3). This midden had encroached on the cemetery of the Red Head Phase which lay as deep at 10'. Red Abalone shell from this cemetery has been dated at 7070 \pm 300 (L-290-D) (Broecker and Kulp 1957). Collected by Phil C. Orr and Bob White.

4260 \pm 90 years BP., UCLA-149 Charcoal in sand surrounding Burial I, at a depth of 83", Cemetery X, Canada Verde Dunes (131.41X). This burial lay in clean, wind-blown dune sand under two black midden horizons which are separated by wind-blown sands. This site is about 600' east of specimens UCLA-139, 137, 138 and 179. Cultural material suggests a close relationship to that of Cemetery A. Collected by Phil C. Orr and Bob White.

4790 \pm 90 years BP., UCLA-105. Mixed mussel and abalone shells (Mytilus californianus and Haliotis rufescens) from midden of Highland Culture (131.43) in Pit M. at a depth of 9-12". This date was directly associated with circular shell fishhooks which have been regarded by most archeologists as being recent. A date of 5370 \pm 150 years BP. (L-446-B) was measured by (Olson and Broecker 1961) from the 18-24" level of this pit. Collected by Phil C. Orr and Wilbur A. Davis.

7350 \pm 350 years BP., M-1133. Red abalone shell (Haliotis rufescens) from humus zone and midden at a depth of 130" in "Jennings Pit", Arlington Springs (131.173). The shell lay directly in the top black zone, with the interior filled with clean wind-blown sand, indicating its time of deposition as the end of the black humus deposit, and the beginning of the wind-blown sand. See also M-1147 at 2090 \pm 150 years and L-650 at 10,000 \pm 200 years. Collected by James B. Griffin.

10,000 \pm 200 years BP., L-650. Charcoal darkened earth from in contact with human femur at a depth of 37' below the surface at Arlington Springs (131.173) in "Pleistocene" clays. Two human femora showing subaerial erosion before burial were found in the edge of an ancient cienaga in the side of Arlington Canyon. The bones were left in situ until examined by members of the Santa Rosa Island Conference in 1960, which was attended by several prominent archeologists, geologists and geographers. The bones were then removed in a block.

Previously Olson and Broecker (1961) had radiocarbon dated similar material at 10,400 \pm 2000 years. The high error was due to an insufficient sample. After the conference Drs. Wallace S. Broecker and William Farrand of Lamont Geological Observatory collected material from the same level, but about 6" horizontally from the bones, which gives the corrected date of 10,000 \pm 200 years BP. Collected by Phil C. Orr, Wallace S. Broecker and William Farrand. References: Olson and Broecker 1961, Orr 1962a, 1962b. See also M-1147 at 2090 \pm 150 years and M-1133 at 7350 \pm 350 years.

11,800 \pm 800 years BP., UCLA-106. Charcoal from contact with bone of semi-articulated dwarf mammoth skeleton at Quarry 14, Arlington Canyon, from a depth of 22' and 4' above a modern stream bed. SBMNH Paleo. No. 351. The cranium of this specimen has been battered, the hind quarters removed, the under, or left foreleg, including scapula, is missing, and the right scapula and humerus also show battering as though from a dull "ax", suggesting butchering by Early Man. Immediately over the skeleton in terrestrial deposits, fragments of abalone shell are found. The large plus-minus factor in the date is attributed by Fergusson (personal communication) to insufficient material. Collected by Phil C. Orr and Wilbur A. Davis.

12,620 \pm 200 years BP., UCLA-141. Charcoal from hearth in black humus and mid-den strata at Survey Point (131.5) containing red abalone shell (Haliotis rufescens), other shells and asphalt. This strata, exposed on the seacliff, is overlain by 4' of waterlaid buff clays, followed by another black humus layer which in turn is covered with dune sand to depths of more than 10'.

>25,000 years BP., M-1132. Charcoal from Survey Point, 45' above base of Tecolote member of Santa Rosa Island formation, and 11' above charred mammoth bones dated at 29,700 \pm 3000 (L-290-R). This date supports that of Lamont which has been questioned by some archeologists, because the evidence suggests activities of man in a cooking area.

Collected by James B. Griffin, Luther Cressman, Wilbur A. Davis, K. O. Emery and Phil C. Orr.

Reference: Broecker and Kulp, 1957.

RADIO CARBON DATES FROM SANTA CRUZ ISLAND:

600 \pm 200 years BP., LJ-227. Mussel shells (Mytilus californianus) from deep unconsolidated Canalino midden at Willows Anchorage on south shore of the island. Collected by Dr. Carl L. Hubbs who comments that the marine organisms infer an essentially warm temperate fauna and rather warm sea and air temperatures, especially by the absence of Cryptochiton.

Reference: Hubbs, Bien and Suess, in press.

14,200 \pm 250 years BP., UCLA-144. Wood from large log of Douglas Fir buried in lowest level of a cut bank of Los Sauces Creek. Cheney and Mason (1935) described nine species of fossil plants and named the Santa Cruz Island formation from this locality. They considered that the flora indicated the climate was similar to that of northern California today.

Collected by Phil C. Orr and Clifton Smith.

RADIOCARBON DATE FROM SAN MIGUEL ISLAND:

2120 \pm 150 years BP., LJ-218. Giant chiton (*Cryptochiton stelleri*) from upper unconsolidated brownish level of midden at Adams Cove.
Collected by Dr. Carl L. Hubbs who comments that the great abundance of cold water species, particularly *Cryptochiton stelleri* and *Tegula brunnea*, indicates that sea temperatures were then cold.
Collected by Carl L. Hubbs.
Reference: Hubbs, Bien and Suess, in press.

RADIOCARBON DATES FROM SAN NICOLAS ISLAND:

300 \pm 60 years BP., UCLA-164. Abalone shell (*Haliotis*) fishhook blanks from site 4-SNi-18, associated with burials 2 and 3, at a depth of 30".
Collected by Fred Reinman and Sam Townsend. Submitted by C. W. Meighan.

3300 \pm 100 years BP., UCLA-165. Abalone shell (*Haliotis*) associated with Burial 2, site 4-SNi-16, Pit E-10. Shells were only a few inches below the surface, and top of skull only one inch below the surface.
Collected by Fred Reinman and Sam Townsend. Submitted by C. W. Meighan.

3980 \pm 100 years BP., UCLA-147. Olivella shell beads from Burials 11 and 14, site 4-SNi-40.
Collected by Fred Reinman and Sam Townsend. Submitted by C. W. Meighan.
Reference: Reinman and Townsend 1960.

RADIOCARBON DATES FROM SAN CLEMENTE ISLAND:

< 100 years BP., LJ-258. Charcoal from hearth at a depth of 13" in house depression at Eel Cove (SCLI-118).

Collected by M. Mckusick and Claude Warren. Submitted by C. W. Meighan.

< 100 years BP., LJ-260. Charcoal from hearth in midden in rockshelter at Eel Cove (SCLI-49).

Collected by M. Mckusick and Claude Warren. Submitted by C. W. Meighan.

450 \pm 80 years BP., LJ-259. Charcoal from depth of 8" in midden at Seal Cove (SCLI-67).

Collected by M. Mckusick and Claude Warren. Submitted by C. W. Meighan.

Comment: Meighan (personal communication) says, "The sites are described in 'Introduction to San Clemente Island Archeology' by M. B. Mckusick and C. N. Warren. The oldest of the dates is conceivable; the others could not possibly apply to aboriginal occupation. The best that can be said is that these sites all appear to be fairly recent".

RADIOCARBON DATE FROM SANTA CATALINA ISLAND:

3880 \pm 250 years BP., M-434. Charcoal from basal level at 24" of midden at Little Harbor.

Reference: Meighan 1959

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